

## Special Issue: Tribute to Frederick F. Ling 1927–2014



**Frederick Fongsun Ling**  
January 2, 1927 - November 8, 2014

under either Professor Ling, his former students, or their successive students. This brief preface is authored by the current and three of the immediate past Editors of the ASME *Journal of Tribology*. I am grateful to Professor Francis Kennedy who spearheaded the idea of this Special Issue as a tribute to the Frederick Fongsun Ling and to all the authors who contributed. All papers in this issue underwent strict anonymous peer review, consistent with the journal policy.

Frederick Fongsun Ling died on Nov. 8, 2014 in New York, NY after a distinguished career in tribology that spanned more than 60 years. Professor Ling taught mechanical engineering and mechanics at four universities during his career: Carnegie Institute of Technology (2 years), Rensselaer Polytechnic Institute (34 years), Columbia University (4 years), and the University of Texas at Austin (10 years). During that period he also published over a hundred technical papers on various aspects of tribology and wrote or edited more than six books, most notably his seminal texts *Surface Mechanics* (1973) and *Fundamentals of Surface Mechanics with Applications* (2002). Dr. Ling received many honors and awards for his achievements, including membership in the prestigious National Academy of Engineering, Honorary Membership in ASME, and the ASME Mayo D. Hersey Award. He had a strong and beneficial influence on the growth of the field of tribology and its application in the latter half of the 20th century, and mentored many engineers and researchers in the field of tribology. The papers in this volume have been written by some of the tribologists whose careers have been influenced by Dr. Ling in one way or another. They include former students and colleagues, and others who learned the lessons and approaches of Fred Ling through his books and papers or by studying

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Dr. Frederick F. Ling was an Eminent Professor of mechanical engineering for 50 years, during which time he introduced many students to the field of tribology. Many of those students have gone on to productive careers in industry, while others entered academia, where they tried to pass along Professor Ling's approaches and values to later generations of students. In his teaching, as in his research activities, he stressed the fundamentals and was rigorous in applying those fundamentals in the solution of important problems. He was a modest, patient, and optimistic mentor; he was very effective at outlining a given problem, and then letting the students use their own judgment in pursuing a detailed solution methodology. He was a strong advocate of those who worked with or for him; nothing delighted Dr. Ling more than helping his students and colleagues advance their careers. He was always a gracious gentleman and scholar, and he established a strong tradition of leadership and service in the tribology and mechanical engineering communities. That tradition is now being carried on by the large number of former students and colleagues whose careers were greatly influenced by Professor F. F. Ling. His values live on through the many tribologists who benefitted from his advice and mentorship.

**Francis E. Kennedy**  
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I would like to say a few words concerning Dr. Ling's tenure at Rensselaer Polytechnic Institute (RPI). This is the period in which his work had its greatest importance in the scientific sense and, perhaps more importantly, the way it affected the lives of his students and colleagues. He came to Rensselaer in 1956, became Chair of the Department of Mechanics from 1967 to 1974, and the first Chair of the newly formed Department of Mechanical Engineering, Aeronautical Engineering, and Mechanics. He served in that role from 1974 to 1986 and was named William Howard Hart Professor Emeritus in 1990. Although local academic memories tend to be short, he is still held in reverence at RPI. Prior to his influence, we were a regional engineering school with a high-quality undergraduate student body. In something like

1975–1980, the Institute was transformed to a modern research university, and the Department into one of the top centers in the world for research in the then-emerging field of tribology. Fred Ling spearheaded this effort, with others of course, most of whom had been hired by Fred. In this short paragraph, I could not do him justice by listing the specific accomplishments. By both his intellectual and moral force, he directed us to the 21st century. He was a man of the utmost integrity and set a standard to which we could only hope to aspire.

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From 1992 to 2003, Professor Frederick F. Ling held the Earnest F. Gloyne Regents Chair in Engineering at University of Texas at Austin within the Department of Mechanical Engineering, and was Associate Director of the Engineering Manufacturing Systems Center. Here Fred initiated a national thrust for Diagnostics and Maintenance Science research, which has benefitted multiple U.S. universities. Fred served on many public policy committees, including a City of San Antonio committee to commission Kelly Air Force Base as a civilian manufacturing center after its closure. In addition to teaching, scholarship, and spearheading research thrusts, Fred actively mentored and advised numerous undergraduates, graduate students, and faculty, including me. He enjoyed helping and mentoring his junior colleagues. Fred led quietly and without pretension. He would coax his junior colleagues into new areas of teaching and research in which they were uncomfortable, but inevitably these moves resulted in long-term benefits. Fred had uncanny foresight seeing science and engineering research opportunities decades before others, and he guided the research funding agencies to these opportunities. Fred was generous with his time and money. After lunch or dinner, he would pounce on the check. After he retired from University of Texas, Fred was awarded the title of Professor Emeritus at University of Texas. Fred was a true gentleman and scholar, a man of utmost integrity and wisdom, a founder of modern tribology, and a joy to know and work with.

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